Amendments to the Claims

Claims 1-47 were cancelled prior to examination

48. (Currently Amended) A spectroscopic system for imaging biological tissue comprising:

multiple input ports arranged to introduce light at input locations into biological tissue and multiple detection ports arranged to collect light from detection locations of the biological tissue,

at least one light source, operatively connected to a radiation pattern controller, constructed to generate light of **[[a]]** an excitation wavelength ~~in a range from visible to infrared~~, said light source being optically coupled to at least one of said input ports;

at least one detector, operatively connected to said radiation pattern controller, constructed and arranged to detect fluorescent light emitted from a fluorescent tissue constituent, wherein said fluorescent light ~~of said wavelength~~ ~~that~~ has migrated in the tissue region to at least one detection location ~~and~~ corresponding to at least one of said detection ports; and

a processor operatively connected to receive detector signals from said detector and provide an image.

49. (New) The spectroscopic system of claim 48 wherein said radiation pattern controller is constructed to control intensity of said introduced light.

50. (New) The spectroscopic system of claim 48 wherein said radiation pattern controller is constructed to control phase of said introduced light.

51. (New) The spectroscopic system of claim 48 wherein said radiation pattern controller is cooperatively constructed and arranged with said light source to generate said light modulated at a frequency on the order of 10^8 Hz.

52. (New) The spectroscopic system of claim 50 including an amplitude detector for detecting amplitude of said fluorescent light.

53. (New) The spectroscopic system of claim 48, wherein said excitation wavelength is selected to be absorbed by an endogenous pigment in the examined tissue emitting said fluorescent light.

54. (New) The spectroscopic system of claim 48, wherein said excitation wavelength is selected to be absorbed by an exogenous pigment emitting said fluorescent light.

55. (New) The spectroscopic system of claim 48 further including an interference filter, said filter being arranged to pass to said detector mainly said fluorescent light excited in the examined tissue.

56. (New) The spectroscopic system of claim 48, wherein said light source includes a laser diode.

57. (New) The spectroscopic system of claim 48, wherein said light source includes a light emitting diode (LED).

58. (New) The spectroscopic system of claim 48, wherein said detector includes a diode detector.

59. (New) The spectroscopic system of claim 48, wherein said detector includes a photomultiplier.

60. (New) A method of spectroscopic examination and imaging of biological tissue, comprising:

providing a radiation pattern controller coupled to a light source, and a detector,

introducing into the biological tissue electromagnetic non-ionizing radiation of an excitation wavelength, said radiation having a known time-varying pattern of photon density,

detecting over time fluorescent radiation emitted from a fluorescent constituent located in the tissue,

processing signals of said detected fluorescent radiation in relation to said introduced radiation to create processed data indicative of location of said fluorescent constituent, including determining location of said fluorescent constituent of the subject by correlating said fluorescent radiation with irradiation and detection locations, and

providing an image.

61. (New) The spectroscopic method of claim 60, including introducing said excitation wavelength being selected to be absorbed by an endogenous pigment in the examined tissue comprising said fluorescent constituent emitting said fluorescent radiation.

62. (New) The spectroscopic method of claim 60, including introducing an exogenous pigment into the tissue, said exogenous pigment comprising said fluorescent constituent emitting said fluorescent radiation.

63. (New) The spectroscopic method of claim 60 including controlling intensity of said introduced radiation utilizing said radiation pattern controller.

64. (New) The spectroscopic method of claim 60 including controlling a phase of said introduced radiation utilizing said radiation pattern controller.

65. (New) The spectroscopic method of claim 60, wherein said radiation pattern controller said radiation pattern controller is cooperatively constructed and arranged with said light source to generate said introduced radiation being modulated at a frequency on the order of 10^8 Hz.

66. (New) The spectroscopic method of claim 63, including detecting amplitude of said fluorescent radiation using an amplitude detector.

67. (New) The spectroscopic method of claim 64, including detecting phase of said fluorescent radiation.